## CLAIMS

What is claimed is:

1. A method for modulating an immune response comprising administering to an individual an effective amount of a thione-forming disulfide.

2. The method according to claim 1 wherein the immune response is a cellular immune response.

3. The method according to claim 2 wherein the cellular immune response is a T cell response and wherein cell populations are increased or lymphoproliferative activity is increased.

4. The method according to claim 3 wherein the T cell response is specific for an HIV-infected cell.

5. The method according to claim 1 wherein the immune response is an innate immune response.

6. The method according to claim 5 wherein the innate immune response comprises increasing the natural killer cell population and NK activity.

7. The method according to claim 1 wherein the immune response is a humoral immune response.

8. The method according to claim 7 wherein the humoral immune response is a decrease in B cell population or B cell response.

9. The method according to claim 8 wherein the humoral immune response is an increase or decrease in antibody secretion.

10. The method according to claim 1 wherein the immune response is biased towards a Th1-type response.

11. The method according to claim 10 wherein the Th1-type response is an increased cell population of NK cells or T cells.

12. The method according to claim 10 wherein the Th1-type response is an increased activity in NK cells or T cells.

13. The method according to claim 1 wherein the immune response is an increase in cytokine levels.

14. The method according to claim 13 wherein the cytokine is selected from the group consisting of IL-2, IFN-γ, IFN-α, IFN-β, IL-12, TNF-α, and TNF-β.

15. The method according to claim 1 wherein the immune response is an increase in chemokine levels.

16. The method according to claim 15 wherein the chemokine is selected from the group consisting of RANTES, IL-8, MIP-1α, MIP-1β, MCP-1, lymphotactin, and eotaxin.

17. A method of modulating an immune response comprising administering to an individual an effective amount of a thione-forming disulfide wherein the thione-forming disulfide is a dithiobis-heterocyclic compound.

18. The method according to claim 17 wherein the dithiobis-heterocyclic compound is an aromatic heterocycle.

19. The method according to claim 17 wherein the thione-forming disulfide has a general formula R-S-S-R, wherein R comprises a heterocyclic aromatic group.

20. The method according to claim 17 wherein the thione-forming disulfide has a general formula R-S-S-R and wherein the R group comprises a cyclic group having at least one five- or six-membered heterocyclic ring, each heterocyclic ring comprising at least one nitrogen, and optionally further heteroatoms selected from the group consisting of N, O, and S.

21. The method according to claim 20 wherein the five- or six-membered heterocyclic ring comprises negative or potentially negative substituents.

22. The method according to claim 17 wherein the thione-forming disulfide has a general formula R-S-S-R and wherein R group comprises a pyridinyl, pyrimidinyl, thiazolyl, or quinolinyl group.

23. A method of modulating an immune response comprising administering to an individual an effective amount of thione-forming disulfides wherein the compound is selected from the group consisting of 6,6'-dithiodinicotinic acid (CPDS), 6,6'-dithiodinicotinic acid diethyl ester, 4-carboxypyrimidine-2-disulfide, diethyl 2,2'-dithiobis-(4-thiazole carboxylate), and 2,2'-dithiobis-isonicotinic acid.

24. The method according to claim 23 wherein the thione-forming disulfides are administered in a pharmaceutically acceptable carrier.